

## HOW TO SELECT THE RIGHT FILE

To achieve the desired results, it is essential to select the right file for the job. The user should consider the shape, size and coarseness of the file. The size and the coarseness of the file are directly related, so the larger the file the more stock it will remove and the smaller the file the finer the finish it will achieve. The material, size of the work, the kind of finish required, the working tolerance allowed, and any potential risks of spoiling the work should be considered as you select the file for your application. Generally speaking bastard and second-cut grades of double-cut files are a good choice for the fast removal of stock, while single-cut files and smooth double-cut files would be chosen for finishing. Most files also have three grades of cut: bastard-cut, second-cut and smooth-cut. The coarser the cut of the file, the rougher the finish of the work. Therefore, the size of the file and the grade of its cut must be taken into account against the amount of stock to be removed and the fineness of finish that is desired.

See our file selection charts on pages 3-5 for additional reference & assistance.

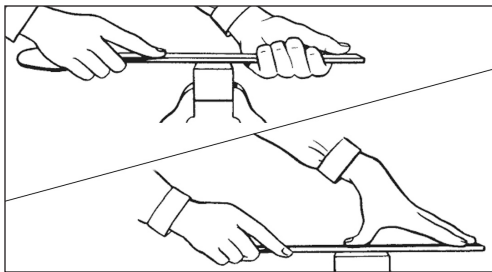
## SHAPE MATTERS

In addition to the amount of stock to be removed, the contour of its removal is equally important and is determined by the shape of the file.

- ◀ **Triangular Files:** a.k.a three square files, should be used on acute internal angles to clear out square corners & in sharpening saw teeth.
- ▬ **Flat Files:** should be used for general-purpose work.
- **Square Files:** ideal for enlarging rectangular holes.
- **Round Files:** best suited for enlarging round holes.
- ◐ **Half-Round Files:** can be used for dual purposes, the flat face for filing flat surfaces, and the curved face for grooves.

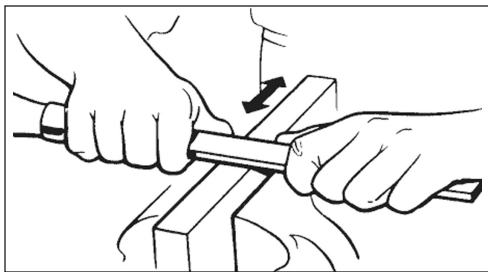
## HOW TO USE FILES

While filing, grip, stroke and pressure may vary according to the job. There are three elemental ways a file can be put to work:



### Straight Filing:

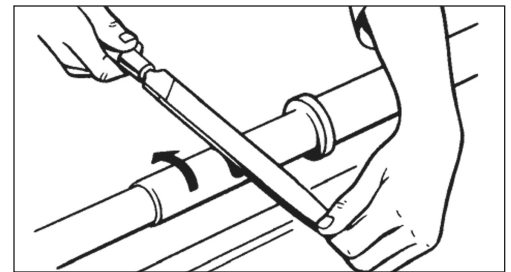
This consists of pushing the file lengthwise-straight ahead or slightly diagonally-across the workpiece.



### Draw Filing:

Drawfiling consists of grasping the file firmly at each end and alternatively pushing and pulling the file sideways across the work. Since files are made primarily to cut on a longitudinal forward stroke, a file with a short-angle cut should never be used, as it will score and scratch instead of shaving and Shearing. When accomplished properly, drawfiling produces a finer finish than straight filing.

Normally, a standard Mill Bastard file is used for drawfiling, but where a considerable amount of stock has to be removed, a Flat or Hand file (Double Cut) will work faster. However, this roughing down leaves small ridges that will have to be smoothed by finishing with a Single Cut Mill file.



### Lathe Filing:

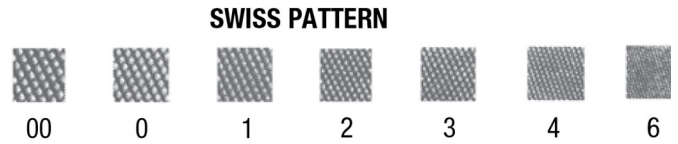
When filing work revolving in a lathe, the file should not be held rigid or stationary, but stroked constantly. A slight gliding motion assists the file to clear itself and eliminate grooves. While a Mill file is capable of good lathe filing, there is a special Long Angle Lathe file with teeth cut at a much larger angle. This provides a cleaner shearing, self-clearing file, eliminates drag, and reduces clogging & chatter. Uncut edges on this file protect any shoulders on the work, which are not filed, and the dog, which holds the workpiece. Lathe filing is usually employed for fitting shafts. For a running fit a Mill file will provide a smooth finish. Where a fine finish is required a Swiss Pattern and or Pillar file in No. 4 is recommended.

### GET A GRIP:

For files needing two-handed operation, the handle should be grasped in one hand and the point of the file in the other hand. The file handle should be rested in the palm with the thumb pointing along the top of the handle and the fingers gripping the underside. The point of the file should be grasped between the thumb & the first two fingers with the thumb being on the top of the file. When heavy strokes are required, the thumb on the point is in line with the file; the tip of the thumb pointed forward. For lighter strokes, the thumb can be turned to as much as right angles to the direction of the stroke.

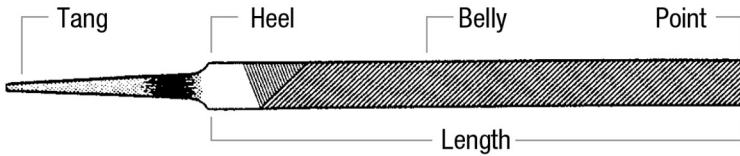
# FUNDAMENTALS OF FILES

## COARSENESS



- Work to be accomplished, whether roughing or finishing, will determine type of teeth and coarseness for each application
- Most American pattern files are available with 3 grades of cut: bastard-cut, second-cut and smooth-cut
- Swiss pattern files are available in seven cuts: No. 00, 0, 1, 2, 3, 4, and 6
- The degree of coarseness is greater in longer files, but differences between bastard, second and smooth are proportionate

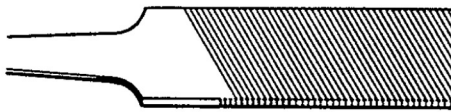
## LENGTH



- Length is measured exclusive of tang, from point to heel, unless specified otherwise
- Desired stroke length, type of material and size will determine length required

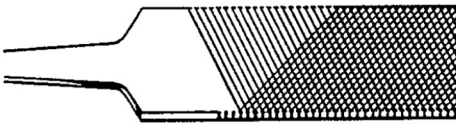
## FILE TEETH

### SINGLE-CUT



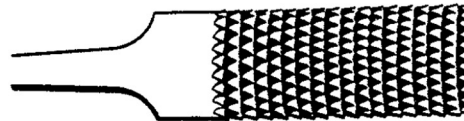
- Single set of parallel, diagonal rows of teeth
- Single-cut files are often used with light pressure to produce a smooth surface finish or to put a keen edge on knives, shears or saws

### DOUBLE-CUT



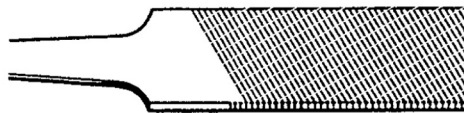
- 2 sets of diagonal rows of teeth
- Second set of teeth cut in opposite diagonal direction and on top of the first set
- First set of teeth is known as the overcut, second is known as upcut
- Upcut is finer than overcut
- Double-cut file is used with heavier pressure than the single-cut and removes material faster from the workpiece

### RASP-CUT



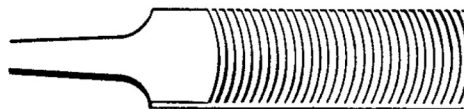
- Series of individual teeth which are formed by a single-pointed tool
- Produces a rough cut that is used primarily on wood, hooves, aluminum and lead

### MAGICUT®




- Single cut teeth divided by angular serrations into shorter cutting edges, which free themselves readily from chips and perform roughing and smoothing at the same time

### CURVED-CUT



- Teeth arranged in curved contours across the file face
- Curved-cut file is normally used in automotive body shops for smoothing body panels

## SAFETY










⚠ WARNING	⚠ AVERTISSEMENT	⚠ ADVERTENCIA
 <p>Risk Of Eye Injury Wear ANSI Approved Eye Protection</p>	<p>Risque de dommages d'oeil Protection d'oeil approuvée de l'usage A.N.S.I.</p>	<p>Riesgo de lesión del ojo Protección de ojo aprobada del desgaste ANSI</p>

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# FILE PROFILE SELECTION CHART










See following page for profile selector for Special Purpose Files.

## Profile Selector for Machinist's Files

Cross Section	Name	Shape
	Flat	Rectangular
	Hand	Rectangular
	Pillar	Almost square
	Warding	Thin
	Square	Square
	Three Square	Triangular
	Round	Circular
	Half Round	Third-Circular
	Knife	Knife-Shaped

Character of Teeth	Taper	General Uses
Usually bastard. Also second-cut and smooth	Taper in width	A general purpose file
One-edge safe. Bastard second-cut and smooth	Uniform in width	Finishing flat surfaces
One-edge safe. Bastard second-cut and smooth	Uniform in width	Keyways, slots narrow work
Usually bastard. Also second-cut and smooth	Width sharply tapered thickness uniform	Filing ward notches in keys. Narrow work
Bastard, second-cut and Smooth	Tapered	Enlarging holes or recesses Mortises, keyways and splines
Sharp edges. Bastard second-cut and smooth	Tapered	Filing acute angles, corners, grooves, notches
Usually bastard. Also second-cut and smooth	Either tapered ("Rat Tail")* or blunt	Enlarging holes; shaping curved surfaces
Usually bastard. Also second-cut and smooth	Uniform in width	Concave corners crevices, round holes
Usually bastard. Also second-cut and smooth	Tapered curving to a narrow point	Cleaning out acute angles, corners, slots

## Profile Selector for Swiss Pattern Files

Cross Section	Name	Shape
	Hand	Rectangular
	Pillar	Width narrower than Hand File
	Warding	Thin Rectangular
	Square	Square
	Three-Square	Triangular (Equilateral)
	Round	Circular
	Half-Round	Third Circular
	Knife	Knife-Shaped
	Cant	Triangular

Character of Teeth	Taper	General Uses
Double-cut on two flat faces and one edge. Other edge safe or uncut	Uniform in width	Flat surfaces
Double-cut on two flat faces. Both edges safe	Uniform in width	Flat surfaces
Double-cut on two flat faces. Single-cut on two edges	Tapered in width uniform in thickness	Slots, locks and keys
Double-cut	Tapered	Corners, holes
Double-cut on three Faces. Single-cut on edges	Tapered	Corners, holes
Double-cut	Either tapered or uniform (straight)	Corners, holes
Double-cut	Tapered	Corners, holes
Double-cut on flat faces. Single-cut on edges	Tapered	Slots
Double-cut on three faces. Single-cut on two sharp edges	Tapered	Corners

# FILE PROFILE SELECTION CHART (CONT.)

## Profile Selector for Special Purpose Files

	Aluminum	Flat Rectangular
	Aluminum	Half-Round
	Long Angle	Flat Rectangular

Made in one cut only. Fast-cutting teeth	Tapered	Filing aluminum alloys and other soft metals
Made in one cut only. Fast-cutting teeth	Slightly tapered	Filing aluminum alloys and other soft metals
Made in one cut only. Both edges safe	Slightly tapered	Lathe work where smooth finish is desired. Also soft metals

# FILE SELECTION CHART BY MATERIAL/APPLICATION

## 'Job by Job' file selector

Aluminum alloy	Flat Bastard File, Aluminum File, Magicut®
Auger Bit	Auger Bit File
Auto Body	Bodifiles
Babbitt	Flat Babbitt, Super Shear®, Flat Files
Bearing, brass	Magicut®
Bearing, bronze	Flat Bastard File, Magicut®
Beveling	Flat Bastard, Mill File
Blacksmith	Rasp and Flat Bastard, Half-Round Bastard, Flat Coarse File
Bolt threads	Taper, Mill or Knife File, Mill Bastard
Brass	Flat Bastard File, Magicut®, Super Shear®
Bronze	Flat Bastard File, Magicut®
Cabinet, wood	Cabinet File, Cabinet Rasp or Woodchuck
Cast iron	Flat, Half-Round, Square or Round File, according to shape of material
Casting rough	Flat Bastard File
Contact points	Mill Bastard, Second Cut, and Tungsten Point Files
Copper	Flat Bastard File, Magicut®
Cutter, Machine tool	This tool is generally ground and sharpened by an emery wheel. Can be filed only when in an annealed condition. Use file to suit shape or surface.
Cutter, milling	See Cutter, Machine tool
De-scaling	Flat Bastard File
Die block	Flat Bastard File
Die casting desired.	Flat Bastard File, Half-Round Bastard File, Round Bastard File, Square Bastard File, or Mill Bastard File, according to shape of the die casting and finish desired.
Die forging	Flat Bastard File or Half Round Bastard File, according to shape of the die forging.

## 'Job by Job' file selector

Die shop	Swiss Pattern Files of appropriate shape
Electric Connections (cleaning)	If surface is large, use Mill Bastard File, otherwise use Tungsten point.
Fender, auto	Bodifiles
Fiber	Flat Bastard File or Rasp
Fine work	Swiss Pattern Files
Finishing	Mill Bastard File. For lathe filing, use Mill Bastard File or Long Angle Lathe File
Foundry casting	Flat Bastard File
Furniture, making	Cabinet File, Cabinet Rasp, or Mill Bastard File
Garden Tool	Home and Garden File
Grooving	Square Bastard, Round Bastard, Half-Round Bastard, or Slim Taper, according to shape of groove
Hard rubber	Flat Bastard File
Hole	Round Bastard File or Square Bastard File
Horse-shoeing	Horse Rasp, Plater's Rasp
Hot metal, filing	Flat Bastard File
Iron	Bastard-Cut File according to shape of material
Joint, mortise and tenon	Cabinet File or Cabinet Rasp
Key way	Square Bastard or Pillar Bastard File
Keys, filing	Warding Bastard File
Knife	Mill Files
Lathe-turned Section	Mill Bastard File or Long Angle Lathe File
Laminate	Laminate File, Plastic File, Mill Bastard File



# ADDITIONAL SELECTION ASSISTANCE

Choosing the right file can sometimes be a challenge. Our expert tech team can help you select the right file for the job based on the material you are working with and the finish you wish to achieve. Contact the team at 800.234.9985 (select option 4), email them at [tech@travers.com](mailto:tech@travers.com), or request support [here](#).



## FILE SELECTION CHART BY MATERIAL/APPLICATION

### 'Job by Job' file selector

Lawn mower	Mill Bastard File or Home and Garden File.
Lock, mending	Warding Bastard File.
Machinists' work	Machinists' File such as Flat, Half Round, Square or Round. Also Mill or Tapers, in cuts according to work.
Millwrights' work	Flat, Half-Round, Round, Square Mill Files.
Model, metal	Swiss Pattern Files.
Molded part	Flat Bastard File or Mill Bastard File.
Notch	Taper or Knife File.
Ornaments, wood Making	Files, including Cabinet File, Cabinet Rasp. Round Bastard Mill Bastard. and Slim Taper File.
Pattern making, Wood	Files, including Cabinet File, Cabinet Rasp, Pattern Makers Rasp, Woodchuck, Round Bastard, Square Bastard, Mill Bastard and Slim Taper File.
Pipe fitting	Half-Round Bastard File.
Planer knife carbon steel	Mill Bastard File.
Plastics	Flat Bastard File. Also Mill Bastard File, Plastics File, Laminate File, sharpened for plastics.
Plumbers' work	Half-Round Bastard.
Rotary mower Blade	Home and Garden File, Handy File, Flat Bastard.
Rough filing	Bastard File depending on shape to be filed.
Slot	Knife File, Slim Taper or Warding.
Snagging	Flat Bastard File.
Soft metal	Flat Bastard.
Stainless Steel	Flat, or Mill File sharpened for stainless
Steel	Flat Bastard File.

### 'Job by Job' file selector

Steel alloy	Use file applicable to the shape of the material. File steel alloy only when it is annealed.
Switch contacts	Contact Point File or Mill Bastard File, according to surface area of switch contacts.
Switch, electric	Mill Bastard File or Contact Point File, according to size of switch.
Template	Files, including Flat Bastard File, Half-Round Bastard File, Mill Bastard File, or Round Bastard File.
V-groove	Files, including Knife, Taper, Slim Taper, X Slim Taper, XX Slim Taper.
Wood working	Cabinet File or Cabinet Rasp.
Zinc	Babbitt File.

### SAWS

Band Saw	Band Saw Taper Single-Cut File
Cant Saw	Cantsaw or Mill Bastard File.
Chain Saw	Round, Special Square, Lozenge File* (Special Mill File for Depth Gauge)
Circular Saw	Mill Bastard, Cantsaw and Slim Taper Files
Cross-Cut Saw	Special Crosscut, Mill, Round, or Round Edge Mill File.
Hand Saw	Slim Taper, Extra Slim Taper, or Double Extra Slim Taper File, according to points of saw. File recommended for saw points per inch. <b>Saw points shown in Bold.</b> 5 - 7" Regular Taper 5 1/2 - 7" Regular Taper 6 - 7" or 8" Slim Taper 7 - 7" or 8" Slim Taper 8 - 6" Slim Taper, 7" Extra Slim Taper or 8" Double Extra Slim Taper 9 - 6" Extra Slim Taper or 7" Double Extra Slim Taper 10 - 5" or 6" Extra Slim Taper
Wood or Buck Saw	Mill Bastard and Slim Taper Files